

REMARKS

Status of the Claims

Claims 63-109 are pending and under examination.

Claims 63-73, 77, 78, 80-82, 89, 90, 94-98, and 101 are amended herein to merely correct informalities.

No new matter is introduced by the present amendment.

Rejection Under 35 U.S.C. § 103(a) over Harvey in view of Rudi

Claims 63-67, 69-73, 81-82, 84, 87-90, and 101-109 are rejected under 35 U.S.C. §103(a) as being obvious over Harvey *et al.* (US Patent No. 5,939,259) in view of Rudi *et al.* (WO 98/51693). Of these claims, Claims 63-66 are independent. Respectfully, this rejection is traversed.

The PTO admits that "Harvey does not specifically teach a method which uses an RNA digesting enzyme." (Office Action at page 4, lines 1-2.) However, the PTO states,

Harvey teaches a process for characterizing DNA by isolating nucleic acids which comprises contacting a biological material with a solid support treated with a lysing reagent (i.e. a absorbent material that is impregnated with chaotropic salt); b) treating the biological material with a DNA purifying agent (i.e. water and vortex), c) purifying the DNA from the remainder (i.e. supernatant) d) analyzing the purified DNA (i.e. PCR reactions and electrophoresis)(col. 5, lines 25-55). Moreover, Harvey specifically teaches fabricating an absorbent material with a roll of 903 paper which is impregnated with guanidine thiocyanate solution having a concentration between 0.5M and 5.0 M. The paper is allowed to dry (col. 5, lines 10-22).

(Office Action at page 2 through page 3, lines 1-7.) Further, the PTO states,

Rudi *et al.* (herein referred to as Rudi) teaches a method of solid-phase nucleic acid isolation. Rudi teaches "if it is desired to remove RNA from DNA, this may be achieved by destroying the RNA." Rudi teaches that this may be done by the addition of an RNAase or an alkali such as NaOH (page 15, lines 34-36)(limitations of Claim 67).

(Office Action at page 4, lines 3-7.) According to the PTO,

Therefore, it would have been *prima facie* obvious, at the time the invention was made to have modified the solid phase lysis and detection method of Harvey to include contacting the solid phase with an RNAase. [Rudi]¹ specifically teaches that if it is desired to remove RNA from DNA this may be done by addition of an RNAase (page 15). Therefore, the ordinary artisan

¹ It appears that the PTO inadvertently references Harvey in this sentence. (See Office Action at page 4, line 16.) It is Applicants' understanding that the PTO intended to refer to Rudi. If Applicants' understanding is incorrect, clarification is requested.

would have been motivated to have removed RNA from a sample to enable detection of DNA. The ordinary artisan would have been motivated to have added a RNAase to the lysing reagent to enable the rapid detection of DNA without an additional step. The ordinary artisan would have had a reasonable expectation of success for modifying the impregnated solid support comprising a lysing reagent with an RNAase to enable a simultaneous method for lysis and removal of RNA.

(Office Action at page 4, last paragraph.); emphasis added.

Finally, in reply to Applicants' previous response, the PTO states,

The response asserts that it is well known to those skilled in the art that Rnase unfold and/or denatures in the presence of such strong denaturing reagents such as taught by Harvey even at concentrations as low as 0.1 M. First, MPEP 716.01(c) makes clear that "The arguments of counsel cannot take the place of evidence in the record."

(Office Action at page 5, last line through page 6, lines 1-4.); emphasis added. Further, the PTO cites an article by Ahmed and states,

Ahmad teaches combinations of denaturants and illustrates activity levels. It is not clear, as applicants suggest, that Rnase is denatured and rendered unusable at low concentrations (see Figure 1, 2, 3), for example.

(Office Action at page 6, last two lines.)

To establish a *prima facie* case of obviousness, a reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2143. *Prima facie* obviousness in the present instance is negated because the references Harvey and Rudi, alone or when combined, do not teach or suggest all the claim limitations.

First, Applicants draw the PTO's attention to the evidence of record, namely the PTO-cited Harvey reference itself, which explicitly teaches that "a chaotropic salt should inactivate any nucleic acid amplification inhibitors present in the biological source ..." (Harvey at col. 3, lines 23-27.) According to Harvey,

Common inhibitors to nucleic acid amplification can be present naturally in a biological source or can be added for handling or processing of a sample from a biological source, (Gunnar Tasa et alia, 1995, *Methods in Molecular and Cellular Biology*; 5, 122-124). Naturally occurring chelating molecules, enzymes and proteins can damage either nucleic acid templates, (such as RNases, DNases), or damage PCR polymerases used in the amplification reactions, (such as proteases).

(Harvey at col. 3, lines 48-56; emphasis added.) Harvey teaches contacting the biological source sample with an absorbent material impregnated with the chaotropic salt. (See, e.g., Harvey at col. 3, lines 15-18 and Abstract.)

Harvey does not teach Applicants' claimed method comprising the step of contacting a biological material that contains DNA with a solid support treated with a lysing reagent and a RNA digesting enzyme, wherein the solid support is free of a biological material at the time of treatment with the lysing reagent and RNA digesting enzyme, wherein the lysing reagent is of a type suitable to preserve the RNA digesting function of the RNA digesting enzyme and is used in an amount suitable to cause lysis of the biological material to release DNA from the biological material. In fact, Harvey teaches away from Applicants' method at least because Harvey requires "a chaotropic salt impregnated about the absorbent material", where according to Harvey (*i.e.*, the evidence of record), the chaotropic salt should **inactivate** any nucleic acid amplification inhibitors (*e.g.*, RNAses) present in the biological source. (Harvey at col. 3, lines 23-27 and col. 3, lines 48-56.)

Rudi teaches a nucleic acid isolating method comprising binding cells to a solid support to isolate cells from the sample, then lysing the isolated cells. (Rudi at page 4, lines 15-20.) According to Rudi, the cell binding composition may include other optional components "as long as they leave the cells intact." (Rudi at page 8, lines 23-27; emphasis added.)

Thus, Rudi does not teach Applicants' claimed method comprising the step of contacting a biological material that contains DNA with a solid support treated with a lysing reagent and a RNA digesting enzyme, wherein the solid support is free of a biological material at the time of treatment with the lysing reagent and RNA digesting enzyme, wherein the lysing reagent is of a type suitable to preserve the RNA digesting function of the RNA digesting enzyme and is used in an amount suitable to cause lysis of the biological material to release DNA from the biological material. In fact, Rudi teaches away from Applicants' method of lysis of cells upon contact with the support at least because Rudi requires binding of intact cells to the solid support. (Rudi at page 8, lines 23-27.)

Thus, neither Harvey nor Rudi, individually or when combined, teach Applicant's claimed method. Absent a teaching of all the claimed limitations, a *prima facie* case of obviousness against the claims cannot therefore be sustained, and withdrawal of the present ground of rejection is respectfully requested.

Moreover, *prima facie* obviousness in the present instance is also negated by lack of any suggestion or motivation, either in the references themselves or in the knowledge

generally available to one of ordinary skill in the art, to combine or modify reference teachings.

Applicants restate the discussion above as it relates to Harvey and Rudi.

The PTO's assertion that "it would have been prima facie obvious, at the time the invention was made to have modified the solid phase lysis and detection method of Harvey to include contacting the solid phase with an RNase" in an effort to attain Applicants' claimed invention would require a substantial change in the basic principles under which Harvey's construction was designed to operate. See, for example, *In re Ratti*, 123 U.S.P.Q. 349, 352 (C.C.P.A. 1959) (holding the suggested combination of references improper under § 103 because it "would require a substantial reconstruction and redesign of the elements shown in [a prior art reference] as well as a change in the basic principles under which [that reference's] construction was designed to operate").

First, Harvey explicitly teaches that the chaotropic salt impregnating the solid support should inactivate any nucleic acid amplification inhibitors (*e.g.*, RNAses) present in the biological source. (Harvey at col. 3, lines 23-27 and col. 3, lines 48-56.) Due to Harvey's requirement for inactivating RNAses, Harvey teaches impregnating the solid support with the chaotropic salt so as to achieve *e.g.*, RNase inactivation. Thus, the suggested modification of Harvey to arrive at Applicants' claimed invention is improper under § 103 because it "would require a substantial reconstruction and redesign of the elements shown in the reference.

Moreover, for reasons stated above, Harvey and Rudi both lack the requisite suggestion or motivation to be properly combined or modified. For example, Rudi requires binding of intact cells to the solid support then lysis. Thus, the suggested combination or modification of Harvey and Rudi to arrive at Applicants' claimed invention is improper under § 103 because it "would require a substantial reconstruction and redesign of the elements shown in the references.

And, any modification of Harvey by the teaching of Rudi, or vice versa, would **destroy and defeat the purpose** of the respective reference, and thus constitutes an improper rejection. See: *In re Fritch*, 972 F.2d 1260, 1265 n.12, 23 U.S.P.Q. 2d 1780, 1783 n. 12 (Fed. Cir. 1992). The Federal Circuit had made it clear that one must look to see if "the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have had a reasonable likelihood of success viewed in light of the prior art." See: *In re Dow Chemical Co. v. American Cyanamid Co.*, 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988).

Thus, for at least the reason that the cited references lack the requisite suggestion or motivation to be properly combined or modified to arrive at Applicants' claimed invention, the Examiner has failed to state a *prima facie* assertion of obviousness.

For at least these reasons, Applicants respectfully assert that the Examiner has not made a *prima facie* case of obviousness under 35 U.S.C. § 103(a). Accordingly, Applicants request that the rejection of Claims 63-66 under 35 U.S.C. § 103(a), over Harvey in view of Rudi be withdrawn and these claims be allowed. Further, Applicants request that the remaining rejected claims (which depend directly or indirectly on Claims 63-66) be allowed because it is error to reject a dependent claim while allowing its parent. *Ex Parte Ligh*, 159 U.S.P.Q. 61, 62 (Bd. Pat. App. & Int. 1967).

Rejection Under 35 U.S.C. § 103(a) over Boom in view of Shieh and Rudi

Claims 63-67, 69, 71-73, 81-90, 101-109 are rejected under 35 U.S.C. 103(a) as being obvious over Boom et al (5,234,809) in view of Shieh (US Pat. 6,054,039, April 2000) in view of Rudi et al. (WO 98/51693, November 19, 1998). Of these claims, Claims 63-66 are independent. Respectfully, this rejection is traversed.

The PTO states,

Boom discloses a process which involved contacting the biological material that contains DNA with a solid support that had been treated with a lysing reagent (i.e. a chaotropic substance), treating the biological material with a purifying reagent, and purifying the DNA (col. 4, lines 3-59). The chaotropic substance (lysing reagent) is contacted with silica particles (solid support). The biological material is then treated with purifying reagents, and the remainder of the biological matter is purified (washing buffer, alcohol washing solution and acetone. Additionally, the process described by Boom produces DNA which can be further used to "demonstrate NA sequences by means of an amplification method such as the PCR method...." (col.4, lines 48-50)(limitations of claims 87-88). Boom teaches that the Gus SCN (i.e. the lysis reagent) is added to the solid support (i.e. the silica beads) prior to addition of biological material.

(Office Action at page 7, lines 5-16.) And, according to the PTO,

However, Shieh teaches a method for lysing cells. Specifically, Shieh teaches the modification of a membrane strip to produce lysis of red blood cells that contacts it (col. 6, lines 17-20) ... Shieh teaches preparing a lysing component by treating the membranes with a lysing agent (col. 10, lines 65-67) ... Furthermore, Shieh teaches that the lysing agent may be coated onto the membrane by any method used in the art for coating solutions onto films such as dip coating an aqueous solution or dispersion of the lysing solution onto the membrane and allowing to dry (col. 11, lines 10-20).

(Office Action at page 8, last paragraph through page 9, lines 1-4.) Further, the PTO essentially restates its assertion above as it relates to Rudi. (See Office Action at page 9.) According to the PTO, “[t]hus, the skilled artisan would have combined the teachings of Boom with the teachings of Shieh in further view of Rudi.” (Office Action at page 11, line 5-6.)

To establish a *prima facie* case of obviousness, a reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2143. *Prima facie* obviousness in the present instance is negated because the references Boom, Shieh, and Rudi, alone or when combined, do not teach or suggest all the claim limitations.

Boom teaches nucleic acid isolation method characterized by mixing the starting material with a chaotropic substance and a nucleic acid binding solid phase. (Boom at col. 2, lines 13-18.) According to Boom, “[b]y a chaotropic substance is meant any substance capable of altering the secondary structure, tertiary and/or quaternary structure of proteins ...” Boom at col. 3, lines 59-62; emphasis added. Further, Boom teaches that “[a] buffer suitable for elution is ... (TE buffer), if desired comprising ...RNAasin [i.e., a known RNase inhibitor].” (See, e.g., Boom at col. 7, lines 36-40, col. 8, lines 32-33, and col. 9, lines 36; emphasis added.)

Nowhere does Boom teach or suggest contacting a biological material that contains DNA with a solid support treated with a lysing reagent and a RNA digesting enzyme, wherein the solid support is free of a biological material at the time of treatment with the lysing reagent and RNA digesting enzyme, wherein the lysing reagent is of a type suitable to preserve the RNA digesting function of the RNA digesting enzyme. In fact, Boom suggests the undesirability of RNase activity by further optionally teaching an RNase inhibitor (i.e., RNAasin) during the last step of elution.

Shieh does not teach or suggest isolating nucleic acids. Shieh is **silent** regarding **any** process for characterizing DNA. In particular, nowhere does Shieh teach or suggest contacting a biological material that contains DNA with a solid support treated with a lysing reagent and a RNA digesting enzyme. Shieh teaches determination of glycoprotein and glycosylated hemoglobin in blood. (See, e.g., Shieh’s Title.) Shieh teaches “a component, typically a membrane coated with a lysing agent, is incorporated to produce lysis of erythrocytes.” (Shieh at col. 5, lines 29-32.) Nowhere does Shieh teach or suggest contacting a biological material that contains DNA with a solid support treated with a lysing reagent and a RNA

digesting enzyme. Moreover, Shieh does not teach or suggest treating a biological material that contains DNA with a DNA purifying reagent, purifying the DNA from the remainder of the biological material, and analyzing the purified DNA.

Further, Applicants restate the discussion above as it relates to Rudi. In fact, Rudi teaches away from Applicants' method at least because Rudi requires binding of intact cells to the solid support. (Rudi at page 8, lines 23-27.)

Thus, neither Boom, Shieh, nor Rudi, individually or when combined, teach Applicant's claimed method. Absent a teaching of all the claimed limitations, a *prima facie* case of obviousness against the claims cannot therefore be sustained, and withdrawal of the present ground of rejection is respectfully requested.

Moreover, *prima facie* obviousness in the present instance is also negated by lack of any suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine or modify reference teachings.

Applicants restate the discussion above as it relates to Boom, Shieh, and Rudi.

First, Shieh does not even teach or suggest isolating a nucleic acid from a biological source. At best, Shieh describes determining glycoprotein or glycosylated hemoglobin in blood using a glycol biosensor having a component that is a membrane coated with a lysing agent for producing lysis of erythrocytes. (Shieh at col. 5, lines 29-32.)

The PTO's proposal for modifying Boom in view of Shieh and Rudi in an effort to attain Applicants' claimed invention would require a substantial change in the basic principles under which Boom's construction was designed to operate. *See, for example, In re Ratti*, 123 U.S.P.Q. 349, 352 (C.C.P.A. 1959) (holding the suggested combination of references improper under § 103 because it "would require a substantial reconstruction and redesign of the elements shown in [a prior art reference] as well as a change in the basic principles under which [that reference's] construction was designed to operate").

Boom explicitly teaches that "[b]y a chaotropic substance is meant any substance capable of altering the secondary structure, tertiary and/or quaternary structure of proteins ..." (Boom at col. 3, lines 59-62; emphasis added.) Thus, one of ordinary skill in the art will recognize that, according to Boom's teaching, the chaotropic substance will alter the secondary structure, tertiary, and/or quaternary structure of RNase. Boom further teaches that in subsequent steps "[a] buffer suitable for elution is ... (TE buffer), if desired comprising ... RNasin [*i.e.*, a known RNase inhibitor]." (See, *e.g.*, Boom at col. 7, lines 36-

40, col. 8, lines 32-33, and col. 9, lines 36; emphasis added.) Thus, any modification of Boom to arrive at Applicants' claimed invention is improper under § 103 because it "would require a substantial reconstruction and redesign of the elements shown in Boom.

Moreover, for reasons stated above, Boom, Shieh, and Rudi lack the requisite suggestion or motivation to be properly combined or modified. For example, Rudi requires binding of **intact cells** to the solid support. Thus, the suggested combination or modification of Boom and Rudi to arrive at Applicants' claimed invention is improper under § 103 because it "would require a substantial reconstruction and redesign of the elements shown in the references.

And, any modification of Boom by the teaching of Rudi, or vice versa, would **destroy and defeat the purpose** of the respective reference, and thus constitutes an improper rejection. See: *In re Fritch*, 972 F.2d 1260, 1265 n.12, 23 U.S.P.Q. 2d 1780, 1783 n. 12 (Fed. Cir. 1992). The Federal Circuit had made it clear that one must look to see if "the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have had a reasonable likelihood of success viewed in light of the prior art." See: *In re Dow Chemical Co. v. American Cyanamid Co.*, 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988).

For at least these reasons, Applicants respectfully assert that the Examiner has not made a *prima facie* case of obviousness under 35 U.S.C. § 103(a). Accordingly, Applicants request that the rejection of Claims 63-66 under 35 U.S.C. § 103(a), over Boom in view of Shieh and Rudi be withdrawn and these claims be allowed. Further, Applicants request that the remaining rejected claims (which depend directly or indirectly on Claims 63-66) be allowed because it is error to reject a dependent claim while allowing its parent. *Ex Parte Ligh*, 159 U.S.P.Q. 61, 62 (Bd. Pat. App. & Int. 1967).

Rejection Under 35 U.S.C. § 103(a) over Deggerdal in view of Shieh and Rudi

Claims 63-67, 69-85, 87-90, 94-96, 101-109 are rejected under 35 U.S.C. 103(a) as being obvious over Deggerdal (WO 96/18731) in view of Shieh (US Pat. 6,054,039, April 2000) in view of Rudi et al. (WO 98/51693, November 19, 1998). Of these claims, Claims 63-66 are independent. Respectfully, this rejection is traversed.

The PTO states,

Deggerdal discloses a "method of isolating nucleic acid from a sample, said method comprising contacting said sample with a detergent and a solid support, whereby soluble nucleic acid in said sample is bound to the support, and separating said support with bound nucleic acid from the sample" (pg 5,

para 2). Deggerdal teaches that the "nucleic acid-containing sample may be contacted with the detergent and solid phase which may be added to the sample prior to, simultaneously with, or subsequently to the detergent (which functions in the method to lyse)"(pg 7, para 3, lines 22-29) ... Deggerdal teaches the lysing reagent as a detergent. This detergent may be supplied in simple aqueous solution (pg 8, line 7). Further any suitable buffer (Tris) is taught. The reagent may also include components such as enzymes, chelating agents and reducing agents (pg 8, lines 7-23).

Deggerdal does not explicitly teach using a solid support in which the lysing reagent is bound, and unbound lysing reagent is removed prior to the contacting of the biological treatment.

Office Action at page 11, last paragraph through page 12, lines 1-4 and last four lines.); emphasis added. Further, the PTO essentially restates its assertions above as it relates to Shieh and Rudi. (See Office Action at pages 13-14.) Therefore, according to the PTO, "the skilled artisan would have combined the teachings of Deggerdal with the teachings of Shieh in view of Rudi." (Office Action at page 15, third paragraph.)

To establish a *prima facie* case of obviousness, a reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2143. *Prima facie* obviousness in the present instance is negated because the references alone or when combined, do not teach or suggest all the claim limitations.

Applicants restate the discussion above as it relates to Shieh and Rudi.

First, Shieh is **silent** regarding **any** process for characterizing DNA. In particular, nowhere does Shieh teach or suggest contacting a biological material that contains DNA with a solid support treated with a lysing reagent and a RNA digesting enzyme.

Deggerdal teaches "a method of isolating nucleic acid from a sample, said method comprising contacting said sample with a detergent and a solid support, whereby soluble nucleic acid in said sample is bound to the support, and separating said support with bound nucleic acid from the sample." (Deggerdal, at third paragraph.) Deggerdal suggests that "[t]he nucleic acid-containing sample may, generally speaking, simply be contacted with the detergent, and a solid phase which may be added to the sample prior to, simultaneously with, or subsequently to the detergent. If necessary, this may be preceded by one or more separate steps to disrupt structural components such as cell walls or to achieve lysis." (Deggerdal, at page 6, last paragraph, lines 1-7; emphasis added.) But, nowhere does Deggerdal teach or suggest Applicants' solid support treated with a lysing reagent and a RNA digesting enzyme, wherein the solid support is free of the biological material at the time of treatment with the lysing reagent and RNA digesting enzyme. While Deggerdal describes isolation of nucleic

acid (e.g., RNA and/or DNA), Deggerdal **fails** to teach or suggest contacting a biological material that contains DNA with a solid support treated with a lysing reagent and a RNA digesting enzyme, wherein the solid support is free of a biological material at the time of treatment with the lysing reagent and RNA digesting enzyme.

Finally, while Rudi describes a solid-phase nucleic acid isolation, Rudi **fails** to teach or suggest contacting a biological material that contains DNA with a solid support treated with a lysing reagent and a RNA digesting enzyme, wherein the solid support is free of a biological material at the time of treatment with the lysing reagent and RNA digesting enzyme, wherein the lysing reagent is of a type suitable to preserve the RNA digesting function of the RNA digesting enzyme and is used in an amount suitable to cause lysis of the biological material to release DNA from the biological material. In fact, Rudi teaches away from Applicants' claimed invention because Rudi **requires** binding "intact cells" to a solid support.

Moreover, *prima facie* obviousness in the present instance is also negated by lack of any suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine or modify reference teachings.

Shieh is simply **silent** regarding **any** process for characterizing DNA. And, any modification of Deggerdall by the teaching of Rudi, or vice versa, would **destroy and defeat the purpose** of the respective reference, and thus constitutes an improper rejection. *See: In re Fritch*, 972 F.2d 1260, 1265 n.12, 23 U.S.P.Q. 2d 1780, 1783 n. 12 (Fed. Cir. 1992). The Federal Circuit had made it clear that one must look to see if "the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have had a reasonable likelihood of success viewed in light of the prior art." *See: In re Dow Chemical Co. v. American Cyanamid Co.*, 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988).

Therefore, **absent Applicants' disclosure**, there is no suggestion or motivation for one of ordinary skill to combine the reference teachings to try to provide Applicants' claimed invention. Respectfully, Applicants maintain that there is no teaching, suggestion, or motivation for one of ordinary skill to try to combine the references as the Examiner has done, without resort to **hindsight**. "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight." *In re Dembiczak*, 175 F.3d 994, 999, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). Therefore, "[i]t

is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” *In re Wesslau*, 353 F.2d 238, 241, 147 U.S.P.Q. 391, 393 (C.C.P.A. 1965).

For at least these reasons, Applicants respectfully assert that the Examiner has not made a *prima facie* case of obviousness under 35 U.S.C. § 103(a). Accordingly, Applicants request that the rejection of Claims 63-66 under 35 U.S.C. § 103(a), over Deggerdal in view of Shieh and Rudi be withdrawn and these claims be allowed. Further, Applicants request that the remaining rejected claims (which depend directly or indirectly on Claims 63-66) be allowed because it is error to reject a dependent claim while allowing its parent. *Ex Parte Ligh*, 159 U.S.P.Q. 61, 62 (Bd. Pat. App. & Int. 1967).

Rejection Under 35 U.S.C. § 103(a) over Boom in view of Shieh, Rudi, and Deggerdal

Claims 95, 97-97 are rejected under 35 U.S.C. 103(a) as being obvious over Boom (5,234,809) in view of Shieh (US Pat. 6,054,039, April 2000) in view of Rudi et al. (WO 98/51693, November 19, 1998) as applied to Claims 63-67, 69, 71-73, 82-90, 101-109 above, and further in view of in view of Deggerdal (WO 96/18731). (See Office Action at pages 16-17.)

Respectfully, Applicants disagree with the PTO’s assertions.

First, Applicants draw the PTO’s attention to the typographical error in the recitation “Claims 95, 97-97 are rejected ...” Office Action at page , line; emphasis added. Thus, Applicants request clarification as to the intended rejection.

Moreover, Applicants point out that the instant rejected claims depend directly or indirectly from at least one of independent Claims 63-66 discussed above. Accordingly, Applicants restate the discussion above as it relates to Claims 63-66 and respectfully request that the instant rejected claims (which depend directly or indirectly on Claims 63-66) be allowed for reasons stated above because it is error to reject a dependent claim while allowing its parent (*i.e.*, Claims 63-66). *Ex Parte Ligh*, 159 U.S.P.Q. 61, 62 (Bd. Pat. App. & Int. 1967).

Rejection Under 35 U.S.C. § 103(a) over Boom in view of Shieh and Rudi or over Deggerdal in view of Shieh and Rudi or over Harvey in view of Rudi and Su

Claims 68, 99-100 are rejected under 35 U.S.C. 103(a) as being obvious over Boom (5, 804,684) in view of Shieh (US Pat. 6,054,039, April 2000) in view of Rudi et al. (WO 98/51693, November 19, 1998) as applied to Claims above 63-67, 69, 71-73, 82-90, 101-109 or Deggerdal (WO 96/18731) in view of Shieh (US Pat. 6,054,039, April 2000) in view of Rudi et al. (WO 98/51693, November 19, 1998) as applied to Claims above 63-67, 69-80, 82-85, 87-90, 93-96, 101-109 or Harvey et al. (US Pat. 5,939,259, August 1999) in view of Rudi et al. (WO 98/51693, November 19, 1998) as applied to Claims 63-67, 69-73, 82, 84, 87-90, 101-109 above and further in view of Su (5,804,684). (See Office Action at pages 17-18.)

Respectfully, Applicants disagree with the PTO's assertions.

Applicants point out that the instant rejected claims (*i.e.*, Claims 68 and 99-100) depend directly or indirectly from at least one of independent Claims 63-66 discussed above. Accordingly, Applicants restate the discussion above as it relates to Claims 63-66 and respectfully request that the instant rejected claims (which depend directly or indirectly on Claims 63-66) be allowed for reasons stated above because it is error to reject a dependent claim while allowing its parent (*i.e.*, Claims 63-66). *Ex Parte Ligh*, 159 U.S.P.Q. 61, 62 (Bd. Pat. App. & Int. 1967).

Rejection Under 35 U.S.C. § 103(a) over Boom in view of Shieh and Rudi or over Harvey in view of Rudi and Arnold

Claims 92-93 are rejected under 35 U.S.C. 103(a) as being obvious over Boom (5, 804,684) in view of Shieh (US Pat. 6,054,039, April 2000) in view of Rudi et al. (WO 98/51693, November 19, 1998) as applied to Claims above 63-67, 69, 71-73, 82-90, 101-109 or Deggerdal (WO 96/18731) in view of Shieh (US Pat. 6,054,039, April 2000) in view of Rudi et al. (WO 98/51693, November 19, 1998) as applied to Claims above 63-67, 69-80, 82-85, 87-90, 93-96, 101-109 or Harvey et al. (US Pat. 5,939,259, August 1999) in view of Rudi et al. (WO 98/51693, November 19, 1998) as applied to Claims 63-67, 69-73, 82, 84, 87-90, 101-109 above and further in view of Arnold (5,599,667). (See Office Action at pages 19-20.)

Respectfully, Applicants disagree with the PTO's assertions.

Applicants point out that the instant rejected claims (*i.e.*, Claims 92-93) depend directly or indirectly from at least one of independent Claims 63-66 discussed above. Accordingly, Applicants restate the discussion above as it relates to Claims 63-66 and

respectfully request that the instant rejected claims (which depend directly or indirectly on Claims 63-66) be allowed for reasons stated above because it is error to reject a dependent claim while allowing its parent (*i.e.*, Claims 63-66). *Ex Parte Ligh*, 159 U.S.P.Q. 61, 62 (Bd. Pat. App. & Int. 1967).

Rejection Under 35 U.S.C. § 103(a) over Boom in view of Shieh and Rudi or over Deggerdal in view of Shieh and Rudi or over Harvey in view of Rudi and Hasebe

Claim 91 is rejected under 35 U.S.C. 103(a) as being obvious over Boom (5,804,684) in view of Shieh (US Pat. 6,054,039, April 2000) in view of Rudi et al. (WO 98/51693, November 19, 1998) or Deggerdal (WO 96/18731) in view of Shieh (US Pat. 6,054,039, April 2000) in view of Rudi et al. (WO 98/51693, November 19, 1998) or Harvey et al. (US Pat. 5,939,259, August 1999) in view of Rudi et al. (WO 98/51693, November 19, 1998) and further in view of Arnold (5,599,6667) as applied to claim 9293 above, and further in view of Hasebe (5,151,345). (See Office Action at pages 20-21.)

Respectfully, Applicants disagree with the PTO's assertions.

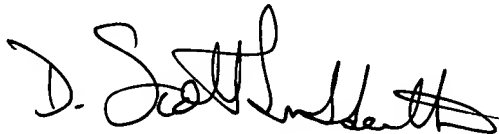
Applicants point out that the instant rejected claims (*i.e.*, Claims 92-93) depend directly or indirectly from at least one of independent Claims 63-66 discussed above. Accordingly, Applicants restate the discussion above as it relates to Claims 63-66 and respectfully request that the instant rejected claims (which depend directly or indirectly on Claims 63-66) be allowed for reasons stated above because it is error to reject a dependent claim while allowing its parent (*i.e.*, Claims 63-66). *Ex Parte Ligh*, 159 U.S.P.Q. 61, 62 (Bd. Pat. App. & Int. 1967).

CONCLUSION

Applicants believe these Remarks place the claims in condition for allowance and such action is respectfully requested. If issues may be resolved through Examiner's Amendment, or clarified in any manner, a call to the undersigned attorney is respectfully requested.

No fees are believed due, however, the Commissioner is hereby authorized to charge any deficiencies which may be required, or credit any overpayment, to Deposit Account Number 09-0528, referencing number 57195.0027.9.

Respectfully submitted,



D. Scott Sudderth
Reg. No. 34,026

Date: July 3, 2007

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